Consumer summary: The effect of acupuncture-point stimulation for chemotherapy-induced nausea or vomiting

A review of the effect of acupuncture-point stimulation for chemotherapy-induced nausea or vomiting was conducted by researchers in the Cochrane Collaboration. After searching for all relevant studies, they found 11 studies. Their findings are summarised below.

What is chemotherapy-induced nausea or vomiting and why acupuncture-point stimulation?

Nausea and vomiting are common reactions to chemotherapy and can cause considerable distress and discomfort to patients undergoing treatment. Vomiting is known medically as emesis and the feeling that one is about to vomit is called nausea.

An antiemetic is a drug that is effective against vomiting and nausea. Several classes of antiemetic agents exist to combat these side effects, though the 5-HT3-receptor antagonists have become the first-line treatment choice for many cancer patients and are considered the "gold standard" in antiemetic therapy. Compared with the older generation antiemetic drugs, 5-HT3-receptor antagonists are effective, well tolerated, and associated with few side effects.

However, many patients still experience these symptoms and the need for additional relief has led to an interest in additional non-pharmacological treatments or therapies. One that has gained increasing popularity is the use of acupuncture. Acupuncture is part of traditional Chinese medicine and involves the placing of thin needles in specific points on your body.

The acupuncture point used to control nausea and vomiting is P6, Pericardum 6 (also called Neiguan). It is located on the anterior surface of the underarm, usually measured as three finger breaths from the wrist.

P6 as other acupuncture points can be stimulated by various methods. The most well known technique is stimulation by insertion and manual rotation of a very fine needle (manual acupuncture). Other techniques include acupuncture applied with electricity through the inserted needle (electroacupuncture), stimulation of the acupuncture point by pressing on the points, usually with fingertip (acupressure), or by electrical stimulation via electrodes on the skin surface (noninvasive electrostimulation).

What does the research say?

Not all research provides the same quality of evidence. The higher the quality, the more certain we are about what the research says about an effect. The words will (high quality evidence), probably (moderate quality evidence) or may (low quality evidence) describe how certain we are about the effect. The word slightly means that the effect is small.

The studies showed that for patients receiving chemotherapy and experiencing nausea or vomiting, manual acupuncture-point stimulation

- May improve proportion vomiting in first 24 hours slightly
- May not improve mean nausea severity in first 24 hours
- Mean number of vomiting episodes and mean nausea severity day 2 to 7 are not reported in the review
- Side effects are not reported in the review
## Table of results

<table>
<thead>
<tr>
<th>What was measured</th>
<th>Non invasive placebo acupuncture</th>
<th>Manual acupuncture-point stimulation</th>
<th>Quality of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>18 per 100</td>
<td>10 per 100 (3 to 31 per 100(^1))</td>
<td>🌟🌟🌟 Low</td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity in first 24 hours</td>
<td></td>
<td></td>
<td>🌟🌟🌟 Low</td>
</tr>
<tr>
<td>Mean nausea severity day 2 to 7</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The numbers in the brackets show the range in which the actual effect could be.

The studies showed that for patients receiving chemotherapy and experiencing nausea or vomiting, electroacupuncture and antiemetics

- Probably improves proportion vomiting in first 24 hours
- Mean number of vomiting episodes day 2 to 7 are not reported in the review
- Mean nausea severity in first 24 hours and day 2 to 7 are not reported in the review
- Side effects are not reported in the review

## Table of results

<table>
<thead>
<tr>
<th>What was measured</th>
<th>Sham acupuncture and antiemetics</th>
<th>Electroacupuncture and antiemetics</th>
<th>Quality of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>80 per 100</td>
<td>57 per 100 (49 to 78 per 100(^1))</td>
<td>🌟🌟🌟 Moderate</td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity in first 24 hours</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity day 2 to 7</td>
<td>Not reported in the review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
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</table>

The numbers in the brackets show the range in which the actual effect could be.

The studies showed that for patients receiving chemotherapy and experiencing nausea or vomiting, acupressure and antiemetics

- May not improve proportion vomiting in first 24 hours
- Probably will not improve mean number of vomiting episodes day 2 to 7
- Probably improves mean nausea severity in first 24 hours
- Probably will not improve mean nausea severity day 2 to 7
- Side effects are not reported in the review
The studies showed that for patients receiving chemotherapy and experiencing nausea or vomiting, **electrostimulation (TENS) to acupuncture points and antiemetics**

- May not improve proportion vomiting in first 24 hours
- May not improve mean number of vomiting episodes day 2 to 7
- May not improve mean nausea severity in first 24 hours
- May not improve mean nausea severity day 2 to 7
- Side effects are not reported in the review

### Table of results

<table>
<thead>
<tr>
<th>What was measured</th>
<th>Antiemetics alone</th>
<th>Acupressure and antiemetics</th>
<th>Quality of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>20 per 100</td>
<td>17 per 100 (12 to 23 per 100(^1))</td>
<td>💧💧💧 Low</td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>The mean number of vomiting episodes day 2 to 7 in the control group was 0.38</td>
<td>The mean number of vomiting episodes day 2 to 7 in intervention group was 0.07 lower (0.25 lower to 0.11 lower(^1))</td>
<td>💧💧💧 Moderate</td>
</tr>
<tr>
<td>Mean nausea severity in first 24 hours</td>
<td>The mean nausea severity in first 24 hours in the control group was 2.5</td>
<td>The mean nausea severity in first 24 hours in intervention group was 0.19 standard deviations lower (0.38 to 0.01 lower(^1))</td>
<td>💧💧💧 Moderate</td>
</tr>
<tr>
<td>Mean nausea severity day 2 to 7</td>
<td>The mean nausea severity day 2 to 7 in the control group was 2.95</td>
<td>The mean nausea severity day 2 to 7 in the intervention group was 0.05 standard deviations lower (0.23 lower to 0.13 higher(^1))</td>
<td>💧💧💧 Moderate</td>
</tr>
</tbody>
</table>

**Side effects**

Not reported in the review

\(^1\)The numbers in the brackets show the range in which the actual effect could be.
Where does this information come from?

The Cochrane Collaboration is an independent global network of volunteers, dedicated to summarizing research about health care.


This summary was prepared by

Vigdis Underland, Ingvil Sæterdal and Elin Strømme Nilsen, the Nordic Cochrane Centre’s Norwegian branch, Norwegian Knowledge Centre for the Health Services, on behalf of the Cochrane Complementary and Alternative Medicine Field, and with funding from the US National Center for Complementary and Alternative Medicine (NCCAM) of the US National Institutes of Health (grants number R24 AT001293).
**Patient or population:** patients with chemotherapy-induced nausea or vomiting  
**Settings:** hospitals  
**Intervention:** electroacupuncture + antiemetics  
**Comparison:** sham acupuncture + antiemetics

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Illustrative comparative risks* (95% CI)</th>
<th>Relative effect (95% CI)</th>
<th>No of Participants (studies)</th>
<th>Quality of the evidence (GRADE)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>Assumed risk: sham acupuncture + antiemetics 62 per 100 (49 to 78)</td>
<td>RR 0.77 (0.61 to 0.97)</td>
<td>134 (3 studies)</td>
<td>⊕⊕⊕ moderate[2,3]</td>
<td>Not reported in the review</td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>See comment</td>
<td>Not estimable 0 (0)</td>
<td>See comment</td>
<td>See comment</td>
<td>Not reported in the review</td>
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<td>Mean nausea severity in first 24 hours</td>
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<td>Not estimable 0 (0)</td>
<td>See comment</td>
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<td>Not reported in the review</td>
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<tr>
<td>Side effects</td>
<td>See comment</td>
<td>See comment</td>
<td>Not estimable 0 (0)</td>
<td>See comment</td>
<td>Not reported in the review</td>
</tr>
</tbody>
</table>

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

**CI:** Confidence interval; **RR:** Risk ratio;

**GRADE Working Group grades of evidence**

- **High quality:** Further research is very unlikely to change our confidence in the estimate of effect.
- **Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
- **Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- **Very low quality:** We are very uncertain about the estimate.

1 Dundee 1987 and 1988: Uncertainty of randomisation procedure and allocation concealment. Dundee 1987 not stated blinding of outcome assessor. Not downgraded for this, since the two studies only account for about 20% of the results.
2 Only three small trials with a total of 134 participants.
### acupressure + antiemetics compared to antiemetics alone for chemotherapy-induced nausea or vomiting

**Patient or population:** patients with chemotherapy-induced nausea or vomiting  
**Settings:** hospital  
**Intervention:** acupressure + antiemetics  
**Comparison:** antiemetics alone

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Illustrative comparative risks* (95% CI)</th>
<th>Corresponding risk</th>
<th>Relative effect (95% CI)</th>
<th>No of Participants (studies)</th>
<th>Quality of the evidence (GRADE)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>Assumed risk: 20 per 100 (12 to 23)</td>
<td>acupressure + antiemetics: 17 per 100</td>
<td>RR 0.83 (0.6 to 1.16)</td>
<td>620 (2 studies)</td>
<td>⊗⊗⊗⊗ low</td>
<td></td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>The mean mean number of vomiting episodes day 2 to 7 in the control groups was 2.5</td>
<td>The mean Mean number of vomiting episodes day 2 to 7 in the intervention groups was 0.07 lower (0.25 lower to 0.11 higher)</td>
<td>463 (1 study)</td>
<td>⊗⊗⊗⊗ moderate</td>
<td></td>
<td></td>
</tr>
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<td>Mean nausea severity in first 24 hours</td>
<td>The mean mean nausea severity in first 24 hours in the control groups was 2.95</td>
<td>The mean Mean nausea severity in first 24 hours in the intervention groups was 0.19 standard deviations lower (0.38 to 0.01 lower)</td>
<td>474 (2 studies)</td>
<td>⊗⊗⊗⊗ moderate</td>
<td></td>
<td></td>
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<tr>
<td>Mean nausea severity day 2 to 7</td>
<td>The mean mean nausea severity day 2 to 7 in the control groups was 2.95</td>
<td>The mean Mean nausea severity day 2 to 7 in the intervention groups was 0.05 standard deviations lower (0.23 lower to 0.13 higher)</td>
<td>485 (2 studies)</td>
<td>⊗⊗⊗⊗ moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
<td>See comment</td>
<td>See comment</td>
<td>Not estimable 0 (0)</td>
<td>See comment</td>
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*The basis for the assumed risk (e.g., the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval; RR: Risk ratio;

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- **Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- **Very low quality:** We are very uncertain about the estimate.

1 One study (Noga 2002) used sham acupressure + antiemetics as control intervention.
3 CI crosses no difference and limits for precision. Only two small studies with a total of 620 participants.
6 Only one trial with a total of 463 participants
7 Analysis 5.3: Roscoe 2003.
8 Only two small studies with a total of 474 participants.
10 Only two small studies with a total of 485 participants.
manual acupuncture compared to noninvasive placebo acupuncture for chemotherapy-induced nausea or vomiting

**Patient or population:** patients with chemotherapy-induced nausea or vomiting  
**Settings:** hospital  
**Intervention:** manual acupuncture  
**Comparison:** noninvasive placebo acupuncture

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<th>Outcomes</th>
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</tr>
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<tr>
<td></td>
<td>Assumed risk noninvasive placebo acupuncture</td>
<td>Corresponding risk manual acupuncture</td>
<td>RR 0.54 (0.17 to 1.71)</td>
<td>80 (1 study²)</td>
<td>⊕⊕⊕⊕ low¹</td>
<td></td>
</tr>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>18 per 100 (3 to 31)</td>
<td>10 per 100</td>
<td>80 (1 study²)</td>
<td>⊕⊕⊕⊕ low¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity in first 24 hours</td>
<td>The mean mean nausea severity in first 24 hours in the control groups was 0.59</td>
<td>The mean nausea severity in the intervention groups was 0.02 standard deviations higher (0.42 lower to 0.46 higher)</td>
<td>80 (1 study²)</td>
<td>⊕⊕⊕⊕ low¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>See comment</td>
<td>See comment</td>
<td>Not estimable 0 (0)</td>
<td>See comment</td>
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<td>Mean nausea severity day 2 to 7</td>
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<td>Side effects</td>
<td>See comment</td>
<td>See comment</td>
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<td>See comment</td>
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¹ CI crosses no difference and limits of precision. Only one small trial with a total of 80 participants.


**Patient or population:** patients with chemotherapy-induced nausea or vomiting

**Settings:** hospital

**Intervention:** electrostimulation (TENS) to acupuncture points + antiemetics

**Comparison:** sham stimulation + antiemetics or antiemedics only

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### Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Assumed risk</th>
<th>Corresponding risk</th>
<th>Relative effect</th>
<th>No of Participants</th>
<th>Quality of the evidence</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion vomiting in first 24 hours</td>
<td>24 per 100 (16 to 29)</td>
<td>22 per 100 (16 to 29)</td>
<td>RR 0.90</td>
<td>629</td>
<td>⊗⊗⊗⊗ low</td>
<td></td>
</tr>
<tr>
<td>Mean number of vomiting episodes day 2 to 7</td>
<td>The mean mean number of vomiting episodes day 2 to 7 in the control groups was 0.52</td>
<td>The mean Mean number of vomiting episodes day 2 to 7 in the intervention groups was 0.06 higher (0.11 lower to 0.22 higher)</td>
<td>527 (3 studies)</td>
<td>⊗⊗⊗⊗ low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity in first 24 hours</td>
<td>The mean mean nausea severity in first 24 hours in the control groups was 2.00</td>
<td>The mean Mean nausea severity in first 24 hours in the intervention groups was 0.07 standard deviations lower (0.23 lower to 0.1 higher)</td>
<td>568 (5 studies)</td>
<td>⊗⊗⊗⊗ low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean nausea severity day 2 to 7</td>
<td>The mean mean nausea severity day 2 to 7 in the control groups was 2.64</td>
<td>The mean Mean nausea severity day 2 to 7 in the intervention groups was 0.03 standard deviations higher (0.14 lower to 0.19 higher)</td>
<td>569 (4 studies)</td>
<td>⊗⊗⊗⊗ low</td>
<td></td>
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Side effects: See comment

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**Very low quality:** We are very uncertain about the estimate.

2 Som uncertainty of directness because of included cross over trials. Not downgraded for this.
3 CI crosses limitations for precision.
5 Two out of three are small trials with a total of 68 participants.
8 Four out of five trials are very small with a total of 122 participants.
10 Three of four trials are very small with a total of 106 participants.